

68A1096 # 267

Cell exhaust ventilation filter

1240

OAK RIDGE NATIONAL LABORATORY

CELL EXHAUST VENTILATION FILTER SYSTEM MODIFICATIONS,
BUILDINGS 4501, 4505 AND 4507

PRELIMINARY PROPOSAL
290

May 23, 1960

1240

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CELL EXHAUST VENTILATION FILTER SYSTEM MODIFICATIONS,
BUILDINGS 4501, 4505 AND 4507

A. References:

1. Letter, dated February 2, 1960, J. A. Swartout to H. M. Roth, Page 3, Item 4.
2. Directive CL-232, "Cell Exhaust Ventilation Filter System Modifications, Buildings 4501, 4505, and 4507," dated February 11, 1960.
3. Request for Directive CR-290, "Cell Exhaust Ventilation Filter System Modifications, Buildings 4501, 4505, and 4507," dated May 23, 1960.

B. Justification of Basic Need:

The justification for this project is contained in a letter dated February 2, 1960, J. A. Swartout to H. M. Roth, "Emergency Authorization to Start Work on ORNL Contamination Control Jobs."

Description:

The effluent air from cell ventilation in Buildings 4501, 4505, and 4507 is channeled through a concrete duct to Stack 3039. Proposed modifications to the system include the relocation of utilities, the construction of a filter housing, blocking the existing duct, and installing a section of new concrete duct and instrumentation.

The existing duct will be blocked to divert the air stream to the filter housing which will contain roughing filters, high efficiency "final" filters, and metallic filters. The filter housing will be approximately 34 feet by 40 feet having walls and roof, 1 foot thick and 1½ feet thick respectively. Plugs in the roof of the housing will afford access for replacing the filters. Dampers will be installed at both the upstream and downstream sides of each filter section so that they can be isolated for servicing the filters. Coated metal ducts, extended from the filter housing to the existing concrete duct, will provide for the exhaust from the filters. Drainage from the filter housing to a radioactive waste line and the necessary utility services will be installed.

C. Preliminary Schematic Plans:

Drawing A - Plot Plan

Drawing B - Plan

Drawing C - Section "A-A"

D. Outline Specifications:

Materials and installation will conform to applicable codes and to Atomic Energy Commission design criteria.

E. Preliminary Estimate of Cost:

The total estimated cost of the project is (see accompanying estimate)
.....\$143,000.

SUMMARY

	<u>CPFF</u>	<u>UCNC</u>	<u>Total</u>
<u>Direct Construction Costs</u>			
Relocate Utilities	6,400	2,600	9,000
Housing and Filters	63,000	11,600	74,600
Sump Pit and Pump	3,300		3,300
Concrete Duct	10,400	800	11,200
Loading Area	1,300		1,300
Instrumentation		1,800	1,800
<u>*Engineering</u>		11,700	11,700
<u>Indirect Costs</u>	12,700	3,900	16,600
<u>Allowance for Contingency</u>	<u>9,900</u>	<u>3,600</u>	<u>13,500</u>
<u>Total Gross Project Cost</u>	107,000	36,000	143,000

*Net

UNIT COST

Not Applicable

F. Proposed Starting and Completion Dates:

	<u>Start</u>	<u>Complete</u>
<u>Engineering</u>		
Design	3-60	5-60
Inspection	7-60	11-60
<u>**Construction</u>		
Contract	7-60	11-60
Union Carbide Nuclear Company	7-60	11-60

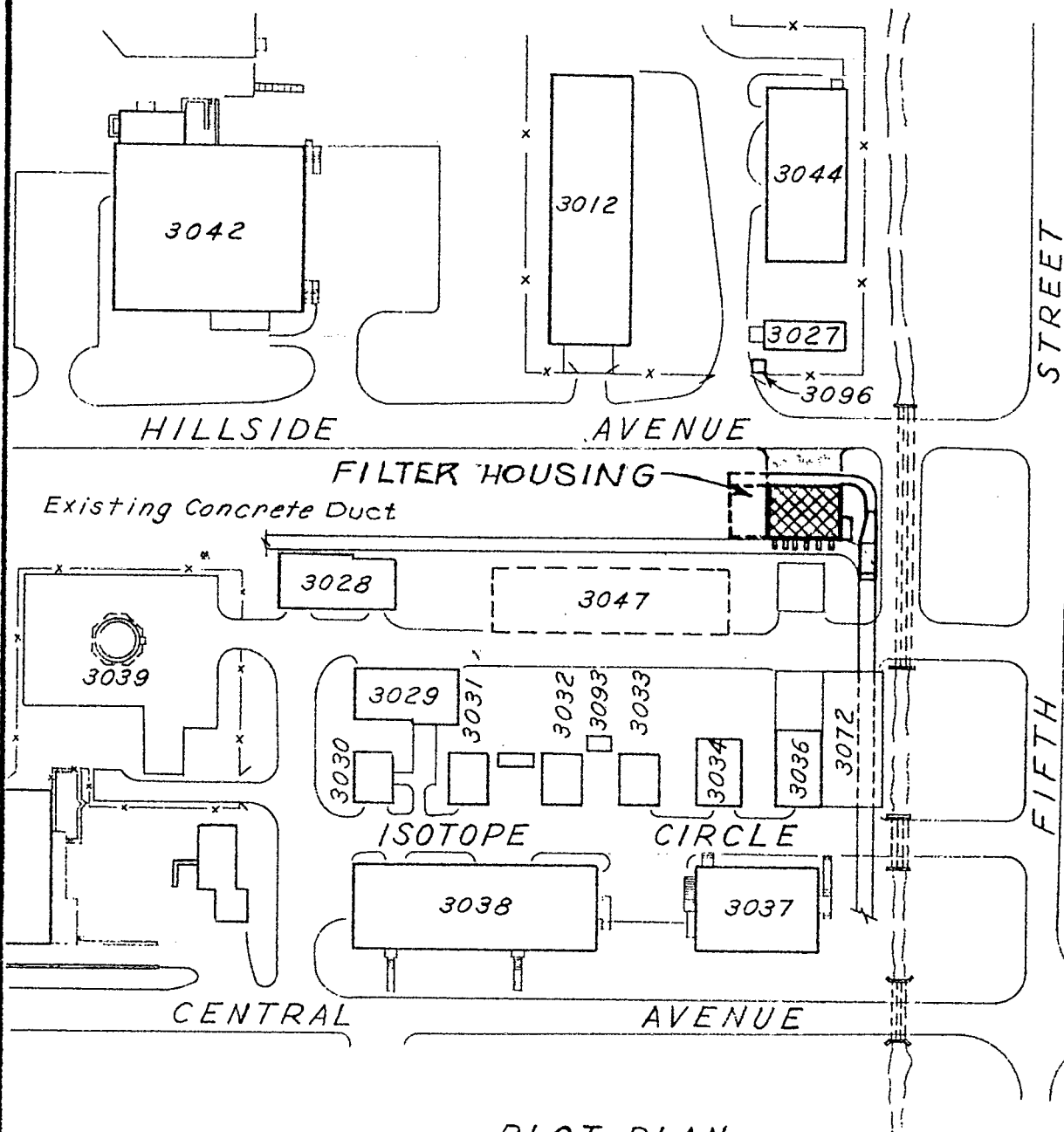
**Based on the assumption that funds will be made available by July 15, 1960.

G. Division of Work:

Engineering authorized by Directive CL-232 is in progress. In addition to the engineering, Union Carbide Nuclear Company will furnish the metallic filters and racks, racks for the final filters, relocate electrical services and provide miscellaneous assistance to contractor. Owing to possible radiation hazard in the work area, the construction will be performed by a cost-plus-fixed-fee contractor.

H. Risks and Exposure Hazards:

The installation of the filters will further reduce the possibility of excessive air-borne particulates entering the off-gas Stack 3039. The thickness of the concrete walls and roof of the filter housing will provide the necessary shielding. There are no abnormal risks involved in the operation of the installation.

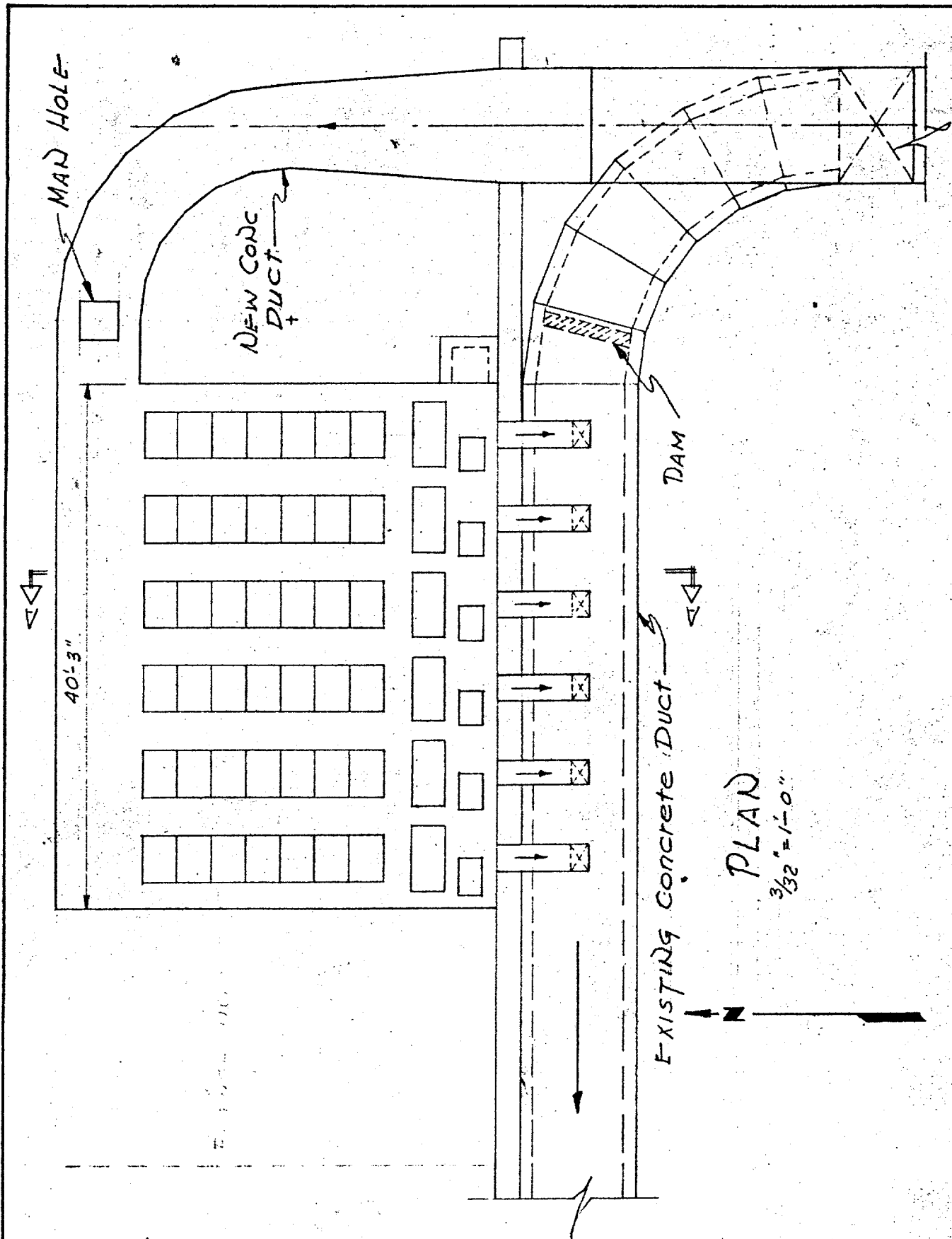


PLOT PLAN



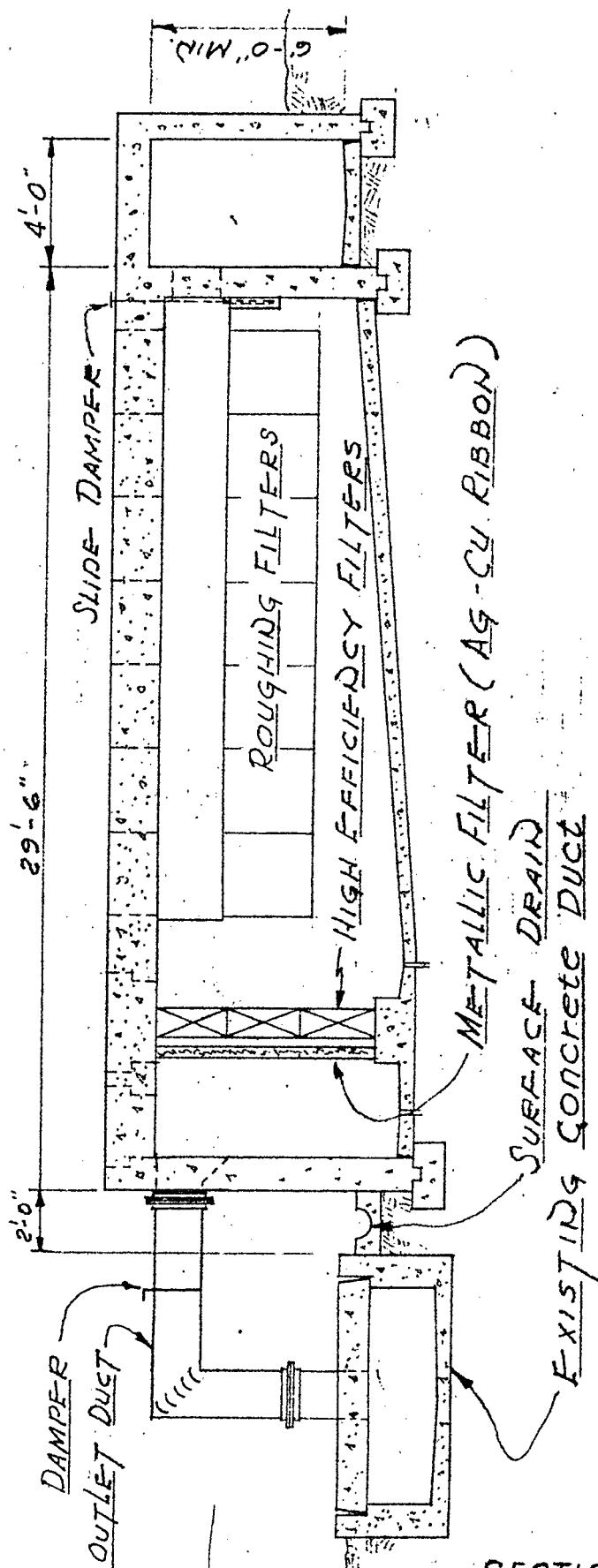
PLOT PLAN
CELL EXHAUST VENTILATION
FILTER SYSTEM MODIFICATIONS
BUILDINGS 4501, 4505 AND 4507
DRAWING A

NOT CLASSIFIED
A-38975



PLAN
CELL EXHAUST VENTILATION
FILTER SYSTEM MODIFICATIONS
BUILDINGS 4501, 4505 AND 4507
DRAWING B

NOT CLASSIFIED
 A-38976



SECTION A-A

SCALE 3/16" = 1'-0"

SECTION A-A
CELL EXHAUST VENTILATION
FILTER SYSTEM MODIFICATIONS
BUILDINGS 4501, 4505 AND 4507
DRAWING C

NOT CLASSIFIED
 A-38977

ESTIMATE

CELL EXHAUST VENTILATION FILTER SYSTEM MODIFICATIONS BUILDINGS 4501, 4505 and 4507

Preliminary Proposal
290

	<u>CPEF</u>	<u>UCNC</u>	<u>Total</u>
<u>Direct Construction Costs</u>			
<u>Relocate Utilities</u>			
Rework Pavement	300		300
Reroute Sanitary Sewer	3,900		3,900
Reroute Process Sewer	2,000	100	2,100
Process Water	200	200	400
Electrical	<u> </u>	<u>2,300</u>	<u>2,300</u>
Sub-Total	6,400	2,600	9,000
<u>Housing and Filters</u>			
Earthwork	6,000		6,000
Concrete	12,300		12,300
Plugs	4,600		4,600
Dampers and Metal Duct	5,900	300	6,200
Metallic Filters and Racks	1,800	8,800	10,600
Final Filters and Racks	8,800	1,700	10,500
Roughing Filters and Racks	17,300	400	17,700
Plugs for Existing Duct	1,900	400	2,300
Drains	<u>4,400</u>	<u> </u>	<u>4,400</u>
Sub-Total	63,000	11,600	74,600

	<u>CPFF</u>	<u>UCNC</u>	<u>Total</u>
<u>Sump Pit and Pump</u>	3,300		3,300
<u>Concrete Duct</u>	10,400	800	11,200
<u>Loading Area</u>	1,300		1,300
<u>Instrumentation</u>		1,800	1,800
<u>Engineering</u>			
Design		8,200	8,200
Inspection	_____	<u>3,500</u>	<u>3,500</u>
Sub-Total		11,700	11,700
TOTAL NET PROJECT COST	<u>84,400</u>	<u>28,500</u>	<u>112,900</u>

OAK RIDGE NATIONAL LABORATORY

OPERATED BY

UNION CARBIDE NUCLEAR COMPANY

POST OFFICE BOX X
OAK RIDGE, TENNESSEE

September 14, 1960

U. S. Atomic Energy Commission
Post Office Box E
Oak Ridge, Tennessee

Attention: Dr. H. M. Roth

Gentlemen:

Subject: REQUEST FOR DIRECTIVE CR-290, SUPPLEMENT 1, "CELL EXHAUST
VENTILATION FILTER SYSTEM MODIFICATIONS, BUILDINGS 4501,
4505, AND 4507"

References:

1. Union Carbide Nuclear Company General Plant Projects
524-601-ORL16 (Design, \$11,000) and 524-61j-ORL-3
(Construction and Inspection, \$169,000).
2. Request for Directive CR-290 and Preliminary Proposal 290,
"Cell Exhaust Ventilation Filter System Modifications,
Buildings 4501, 4505, and 4507," dated May 23, 1960.
3. Directive CL-232, "Cell Exhaust Ventilation System Modi-
fications, Buildings 4501, 4505, and 4507," dated
February 11, 1960; Modification 1, dated June 23, 1960;
and Modification 2, dated July 21, 1960.

The outline of the proposed modifications and the accompanying estimate submitted in Preliminary Proposal 290 were compiled from very incomplete information. A re-evaluation of the project at the completion of Titles I and II engineering services results in a revision in the scope of the proposed work and an increase in the estimated cost from \$144,000 to \$180,000.

The filters were eliminated from the estimate as a result of a decision that these are expendable items and, therefore, should not be a capitalized asset. The balance of the items in the estimate are basically the same as submitted with the exception that the items have been rearranged to correspond to the estimate submitted by the H. K. Ferguson Company.

CR-290
A 9195
SEP 14 1960

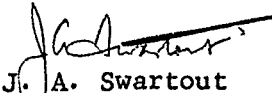
Dr. H. M. Roth

-2-

September 14, 1960

It is requested that Directive CL-232 be further modified to authorize the increase in the project cost as reflected by the revised estimate.

Sincerely yours,


J. A. Swartout
Deputy Director

JAS:CAB:mss

Enclosure: Revised Estimate

cc: C. E. Center
W. A. Bonnet (3)
E. A. Bagley
F. L. Culler
W. L. Morgan
H. E. Seagren
R. B. Somers (2)
Hezz Stringfield

REVISED ESTIMATE

CELL EXHAUST VENTILATION FILTER SYSTEM MODIFICATIONS BUILDINGS 4501, 4505 AND 4507

	<u>CPFF</u>	<u>UCNC</u>	<u>Total</u>
<u>Direct Construction Costs</u>			
Reroute Sewers	2,600	500	3,100
Earthwork (Housing, Access Pad, Process Piping)	15,900		15,900
Concrete (Housing, Access Pad, Duct)	36,700	200	36,900
Plugs	15,000	1,700	16,700
Dampers and Metal Duct	19,200	400	19,600
Filter Racks	10,000		10,000
Electrical Power	13,500	500	14,000
Painting	7,000		7,000
Process Piping	7,100	500	7,600
<u>*Engineering</u>		11,700	11,700
<u>Indirect Costs</u>	19,000	3,600	22,600
<u>Allowance for Contingencies</u>	<u>14,000</u>	<u>900</u>	<u>14,900</u>
<u>Revised Total</u>	160,000	20,000	180,000

*Net